

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (currently amended) An iron chelator delivery system for treating iron overload in the heart, comprising an iron chelator[,] and a lipid carrier, [and] wherein said lipid carrier further comprises an antibody for targeting at least one cardiac protein.
2. (original) The iron chelator delivery system of claim 1, wherein the iron chelator is selected from the group consisting of Desferrioxamine, deferipone, PIH, Rhodotorulic acid, HBED, HBPD, 2,3-dihydroxybenzoic acid, DTPA, and iron chelators produced by bacterial siderophores.
3. (original) The iron chelator delivery system of claim 1, wherein the concentration of the iron chelator is about 1 μ M to about 100 mM.
4. (previously amended) The iron chelator delivery system of claim 1, wherein the lipid carrier is a liposome having at least one bilayer.
5. (original) The iron chelator delivery system of claim 4, wherein the liposome is multilamellar or unilamellar.
6. (original) The iron chelator system of claim 4, wherein the size of the liposome is about 10 nM to about 10 microns.
7. (currently amended) An [The] iron chelator delivery system of claim 1 for targeting the heart, comprising an iron chelator and a lipid carrier, wherein the lipid carrier further comprises cationic or anionic charge groups.
8. (currently amended) The iron chelator system of claim 1, wherein the antibody lipid carrier further comprises an antibody ~~antibodies~~ specific to a cardiac protein, and

wherein the cardiac protein is selected from the group consisting of cardiac myocyte proteins, vasculature proteins, endothelial cells, and matrix proteins ~~wherein the antibodies are attached to the lipid carrier.~~

9. (canceled) The iron chelator system of claim 1, wherein the lipid carrier is tagged.

10. (currently amended) The iron chelator system of claim 31, wherein the liver cell targeting agent is galactosylated or mannosylated selected from the group consisting of asialoglycoprotein, galactose and mannose.

11. (previously amended) The iron chelator system of claim 4, wherein the iron chelator is encapsulated between the liposome bilayers or intercalated within the bilayers.

12. (original) The iron chelator system of claim 4, wherein the iron chelator is encapsulated within the central cavity of the liposome.

13. (withdrawn) A method of preparing an iron chelator delivery system, comprising the steps of
(a) combining a liposome with an iron chelator; and
(b) extracting the iron chelator-encapsulated liposomes to form an iron chelator delivery system.

14. (withdrawn) A method of preparing an iron chelator delivery system, comprising the steps of
(a) dissolving phosphatidyl choline (PC) and cholesterol (Ch) in chloroform (CHCl_3) to form an aqueous phase and an organic phase;
(b) adding iron chelator to the aqueous phase;
(c) vortexing the aqueous and organic phases;
(d) evaporating the organic phase under a partial vacuum to form iron chelator-encapsulated liposomes;
(e) extruding the liposomes through membrane filters;
(f) removing the non-encapsulated iron chelator by centrifugation; and

(g) extracting the iron chelator-encapsulated liposomes to form an iron chelator delivery system.

15. (withdrawn) The method according to claim 13, wherein the iron chelator is selected from the group consisting of Desferrioxamine, Deferipone, PIH, Rhodotorulic acid, HBED, HBPD, 2,3-dihydroxybenzoic acid, DTPA, and iron chelators produced by bacterial siderophores.

16. (withdrawn) A method of preparing an iron chelator delivery system, comprising the steps of

- (a) drying a mixture of phosphatidyl choline (PC) and cholesterol (Ch) in CHCl_3 and vacuum desiccated to form liposomes;
- (b) hydrating the liposomes by adding a solution of iron chelator;
- (c) vortexing the solution to form iron chelator-encapsulated liposomes;
- (d) extruding the liposomes through membrane filters
- (e) dialyzing the liposomes to purify the iron chelator-encapsulated liposomes thereby forming the iron chelator delivery system.

17. (withdrawn) The method according to claim 16, wherein the iron chelator is selected from the group consisting of Desferrioxamine, deferipone, PIH, Rhodotorulic acid, HBED, HBPD, 2,3-dihydroxybenzoic acid, DTPA, and iron chelators produced by bacterial siderophores.

18. (withdrawn) A method of treating iron-overload in a mammal in need of treatment, comprising administering to the mammal an iron chelator delivery system comprising an iron chelator and a lipid carrier so that treatment occurs.

19. (withdrawn) The method according to claim 18, wherein the iron chelator is selected from the group consisting of Desferrioxamine, deferipone, PIH, Rhodotorulic acid, HBED, HBPD, 2,3-dihydroxybenzoic acid, DTPA, and iron chelators produced by bacterial siderophores.

20. (withdrawn) The method according to claim 18, wherein the wherein the concentration of the iron chelator is about $1\mu\text{M}$ to about 100mM .

21. (withdrawn) The method according to claim 18, wherein the lipid carrier is a liposome.

22. (withdrawn) The method according to claim 21, wherein the size of the liposome is about 10nm to about 10 microns.

23. (withdrawn) The method according to claim 18, wherein the lipid carrier further comprises cationic or anionic charge groups.

24. (withdrawn) The method according to claim 18, wherein the lipid carrier further comprises antibodies specific for cardiac proteins, wherein the proteins are selected from the group consisting of cardiac myocyte proteins, vasculature proteins, endothelial cells, and matrix proteins.

25. (withdrawn) The method according to claim 18, wherein the lipid carrier is tagged.

26. (withdrawn) The method of claim 18, wherein the iron chelator delivery system is administered by injection into the venous circulation.

27. (withdrawn) The method according to claim 18, wherein the lipid carrier is galactosylated or mannosylated.

28. (withdrawn) The method according to claim 18, wherein prior to administration the iron chelator drug delivery system is dissolved in a pharmaceutically acceptable carrier.

29. (withdrawn) A method of treating iron-overload in a mammal in need of treatment, comprising administering to the mammal an iron chelator delivery system comprising iron chelator and a liposome so that treatment occurs, wherein the concentration of the iron chelator is about 1 μ M to about 100mM, the size of the liposome is about 10nm to about 10 microns, the liposome is dissolved in a pharmaceutically acceptable excipient prior to administration, and the liposome is administered for about 20 to about 30 minutes.

30. (currently amended) The iron-chelator delivery system of claim 1 wherein the cardiac protein is selected from the group consisting of myosin, ~~actin, tropomyosin,~~ troponin, and myosin light chain.

31. (currently amended) An iron chelator delivery system for treating iron overload in the liver, comprising an iron chelator[,] and a lipid carrier, wherein said lipid carrier further comprises a liver cell targeting agent for targeting [and] at least one carbohydrate liver cell receptor.

32. (currently amended) The iron chelator delivery system of claim 31, wherein the liver cell carbohydrate receptor is selected from the group consisting of a hepatocyte asialoglycoprotein receptor, a Kupffer cell mannose receptor, and a liver endothelial cell.

33. (new) The iron chelator delivery system of claim 31, wherein the iron chelator is selected from the group consisting of Desferrioxamine, deferipone, PIH, Rhodotorulic acid, HBED, HBPD, 2,3-dihydroxybenzoic acid, DTPA, and iron chelators produced by bacterial siderophores.

34. (new) The iron chelator delivery system of claim 31, wherein the concentration of the iron chelator is about 1 μM to about 100 mM.

35. (new) The iron chelator delivery system of claim 31, wherein the lipid carrier is a liposome.

36. (new) The iron chelator delivery system of claim 7, wherein the iron chelator is selected from the group consisting of Desferrioxamine, deferipone, PIH, Rhodotorulic acid, HBED, HBPD, 2,3-dihydroxybenzoic acid, DTPA, and iron chelators produced by bacterial siderophores.

37. (new) The iron chelator delivery system of claim 7, wherein the concentration of the iron chelator is about 1 μM to about 100 mM.

38. (new) The iron chelator delivery system of claim 7, wherein the lipid carrier is a liposome.